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## FERNS OF MT. TOBY, MASSACHUSETTS.

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THE description in RHODORA<sup>1</sup> of the delightful fern ravine in Thetford, Vermont, moves me to tell of our Western Massachusetts fern paradise. This is Mt. Toby, five or six miles north of Amherst, a favorite resort of botanists for other growths as well as ferns. Mr. Solomon Stebbins of Springfield tells me that within a circle not over two miles in diameter some fifty species and varieties of ferns (including some of the allied Adder's Tongue family) may be found, — the exact number hard to state on account of the varieties, for some of these are ill-defined and it is difficult to know whether to count them or not. The diversity of surface affords a suitable habitat for the rock and the wood ferns, those that love pasture, meadow, marsh or brookside, and so we have first, eighteen of the nineteen in the Thetford list, all common; but the nineteenth, *Aspidium aculeatum*, var. *Braunii*, does not grow in our State so far as known. *Cystopteris fragilis* and *Onoclea sensibilis* can always be found finely fruited. *Asplenium angustifolium*, though local, is abundant in spots, and *Aspidium acrostichoides*, var. *incisum*, not infrequent.

Mt. Toby gives us in addition the following: *Pellaea gracilis* grows in crevices, on shaded rocks and at the foot of dripping ledges, while *P. atropurpurea* can always be found on certain dry rocks, but is not so common. *Asplenium Trichomanes* and *A. ebeneum*, and a form of the latter with incised pinnae also occur, together with *A. Filix-foemina* and several variations — *Michauxii*, *rigidum*, *laciniatum* and *exile*, whether allowed as varieties or only forms. These grow

<sup>1</sup> Vol. ii, 229.



anywhere, but *A. Ruta-muraria* is scarce,— only one patch on rocks within this circle.

We find the Walking-leaf — to use Dr. Bigelow's English name for the *Camptosorus* — but a pretty habit that it has may be the death of it. Growing amongst mosses and other low plants that need but little depth of soil, and whose interlaced roots weave the whole together, it frequently carpets the flat tops of rocks,— a beautiful sight which draws the attention even of idle picnickers who, not realizing that they are destroying years of growth, find it amusing to peel off these mats and then, without a pitying thought, throw them on the ground to die. Thus they have laid bare the rocks within sight of their walks; but away from the paths the interesting fern is still common.

The three species of Phegopteris, *P. polypodioides*, *P. hexagonoptera* and *P. Dryopteris* are common; the Aspidiums, *A. Thelypteris*, *A. Noveboracense*, *A. spinulosum* with var. *intermedium* and *A. Boottii* are everywhere, while *A. cristatum*, var. *Clintonianum* is not so common. *Cystopteris bulbifera* edges the brooks and drapes the wet rocky banks with a luxuriant growth, the elegantly tapering fronds often three feet long, and the rhachis thickly set with bulblets. *Woodsia obtusa* is fairly common on rocks, but disappears as we go up and is replaced by *W. Ilvensis*. The three Osmundas grow wherever the situation suits them, and var. *frondosa* of *O. cinnanomea* may be found any year when there has been a late spring frost to check the development of the unrolling fronds;— so I am told by Dr. W. H. Chapin, who is, like Mr. Stebbins, very familiar with the mountain.

Of the Adder's Tongue family, first in interest is perhaps *Botrychium simplex*. One happy year Mr. Stebbins, with a friend's help, counted over eight hundred plants in a space ten rods by seven or eight in extent, and that after he had collected freely for pressing; it took sharp eyes to detect the delicate little things, but the census takers went down and crept on hands and knees as long as specimens showed themselves. A few came up in the same place the next year, but after that no more; still at the right season one who knows the mountain can find the plant in some spot. *B. Virginianum* grows in the woods, *B. ternatum* in its varieties *australe* and *intermedium* in the sugar orchards, and vars. *obliquum* and *dissectum* in pastures. *Ophioglossum vulgatum* comes up in solid clumps and then mysteriously disappears and has to be sought in some other place, but it is soon found.



This closes the list of Mt. Toby ferns. There are only five more in this part of the state, *Woodwardia Virginica* and *W. angustifolia*, *Lygodium palmatum*, *Botrychium matricariaefolium* and *B. lanceolatum*. We cannot credit our beloved mountain with these, but are well satisfied with the thirty-seven to fifty kinds — according to the number of varieties that one chooses to admit — which we can collect in one day within the sweep of our one mile radius. Our Mt. Toby plants are more scattered than those of the charming Vermont fern garden, and we have to work harder for them, but, considering their number and the rarity of some, we think our paradise worthy of a place in a botanist's heart, beside that other delightful spot.

SPRINGFIELD, MASSACHUSETTS.

#### THE NORTHEASTERN CARICES OF THE SUBSECTION VESICARIAE.

M. L. FERNALD.

THE species of *Carex* ordinarily referred to the *Vesicariae* have been, with the possible exception of the *Rigidae* and the *Ovales*, the source of our greatest difficulty in studying that genus in Eastern America. Nearly all the forms now known in our flora have been from time to time associated with two or more so-called species, a divergence of treatment readily seen between the first and the sixth editions of Gray's Manual. In the first edition Carey recognized as American species *C. vesicaria*, L. and *C. ampullacea*, Good., of Europe. In subsequent editions other European species of the group, *C. rotundata*, Wahl., and *C. pulla*, Good., were recognized as belonging to our flora. Gradually, however, the American plants which once passed under those names, have been set apart, one by one, as distinctively American species, and for the American *Carex vesicaria* we have *C. monile*, Tuck.; for our *C. ampullacea*, *C. utriculata*, Boott; for American *C. rotundata* and *pulla*, *C. miliaris*, Michx. A study of some recently collected material has convinced the writer, however, that there is little reason for separating many American plants from the Old World species which they represent.

Recent authors have recognized in eastern America three species of the *saxatilis* (*pulla*) group. Of these *C. oligosperma* and *C. compacta* are clearly marked and perhaps of purely American range.